

A Petition Under 37 C.F.R. §1.181 for withdrawal of finality of the Office Action has been filed; as of today's date, the office of the undersigned has not received the decision on this Petition from the Patent and Trademark Office. In the interest of expediting prosecution, the present Response is being prepared and filed. Should the Petition be granted, Applicants reserve the right to prepare and file a further Response to the nonfinal Office Action.

Claims 1-20 and 27 have been rejected under 35 U.S.C. §112, first paragraph, in paragraphs 1 and 2 on page 2 of the Final Office Action. More particularly, it is asserted there is insufficient support for the limitations "gloss of 60% or below" and "opacity of 83% or above" as recited in the claims. Attention is respectfully called to the empirical results documented in Tables 1 and 2 on pages 37 and 39 of the present application. It is clearly seen the paper of the inventive examples all possess gloss of 60% or below and opacity of 83% or above. More particularly, these inventive examples show optical properties of gloss from 15% up to 60% and opaqueness of 83% to 96%.

Thus, there is clearly adequate support for the claimed levels or ranges as set forth herein. The Examiner has not shown why the claimed invention would fail to include those ranges finding support in these tables; i.e., the burdening of challenging the invention disclosure under 35 U.S.C. §112, first paragraph, has not been met.

Claims 1-20 and 27 have been rejected under 35 U.S.C. §103 as obvious over Takashi et al U.S. Pat. No. 4,318,950 in view of "Ueda" European Patent no. 0,613,919 and "Ohba et al" U.S. Pat. No. 5,233,924 in paragraph 1 on pages 3-6 of the Office Action. Attention is respectfully called to the Third Supplemental Declaration executed by joint

inventor and applicant Masaaki Yamanaka enclosed herewith (herein after referred to as the Third Supplemental Declaration). Testing was carried out with eight different kinds of synthetic paper documented in Experiments 1-8 in this Third Supplemental Declaration, namely:

- (1) A three-layered film in Experiment 1 of the prior Second Supplemental Declaration corresponding to Example 12 of Takashi et al and with surface oxidation treatment;
- (2). The same three-layered film as in Experiment (1) supra, but with the surface oxidation treatment eliminated;
- (3) A two-layered film prepared according to Experiment (1) supra, including surface oxidation treatment;
- (4) A single-layer film prepared according to Experiment (1) supra, with surface oxidation treatment;
- (5) A three-layered film prepared according to Example 1 in the present application and with surface oxidation treatment;
- (6) A two-layered film prepared according to Example 1 in the present application (5) supra and with surface oxidation treatment;
- (7) A single-layer film prepared according to Example 1 in the present application (5) supra and with surface oxidation treatment; and
- (8) A three-layered film prepared according to Experiment (1) supra and in which the amount of high molecular weight antistatic agent (PEEA) was increased 40 % by weight (66.7 parts by weight) based upon 60% by weight of the resin components (PP 80 parts by weight and polyamide 20 parts by weight) in the paper-like layer of Experiment (3)

in the Second Supplemental Declaration (PEEA 20 parts by weight).

The surface resistivities of each of the thus-prepared synthetic papers (1)-(8) before and after washing with water, ink adhesion and suitability for paper feeding/discharge as offset printability were then evaluated. The results are presented in Tables 1 and 2 of the enclosed Third Supplemental Declaration. Surface resistivity of the synthetic papers (1)-(4) was high and suitability for paper feeding/discharge as offset printability deteriorated. In contrast, surface resistivity of the inventive synthetic papers (5)-(7) is clearly superior, in addition to suitability for paper feeding/discharge as the offset printability. In other words, synthetic paper excellent in suitability for paper feeding/discharge as the offset printability is produced with a film satisfying the definition of Claim 1 as the surface layer.

Concerning the comments raised on pages 3-6 of the Office Action, it is asserted "Ueda teaches b2 is necessarily present and components C and D are desirably present" at page 5, lines 8 and 9 and "Ueda teaches that b2 is necessarily present (see claim 1) and claimed components C, and D are desirably present" at page 5, lines 19 and 20. Based upon these statements, it appears the Examiner considers that b2 (an alkylene oxide adduct of bisphenol A having a number average molecular weight of from 300 to 5,000 as defined in Claim 1 of the present application), is not contained in the high molecular weight antistatic agent (PEEA) as used in the Second Supplemental Declaration.

It is respectfully pointed out such conclusion is in error. b2 is contained in the high molecular weight antistatic agent (PEEA) as used in the second Supplemental Declaration. The PEEA as used in the Second Supplemental Declaration is the same as in Example 1 of the present application and contains the component b2 as is clear from the description "an ethylene oxide adduct of bisphenol A having a number average molecular weight of

1,000" on page 26, lines 7 to 9 in Production Example 1 in the present application. Furthermore, polyamide of resin component as used in the Second Supplemental Declaration is component C of the present invention.

Concerning the assertion that Ueda teaches higher amounts of PEEA antistatic agent, attention is called to Experiment (8) of the enclosed Third Supplemental Declaration where the amount of PEEA is increased to the upper limit of 40% by weight in claim 5 of Ueda. The surface resistivity of this paper is documented high while the suitability for paper feeding/discharge as offset printability deteriorated, compared with the papers of the claimed invention.

Ohba et al. add nothing to Takashi et al. and/or Ueda which would render obvious the invention as recited in any pending claim.

Accordingly, in view of the forgoing remarks and accompanying Third Supplemental Declaration, it is respectfully submitted that the present application is in condition for allowance. Please contact the undersigned attorney should there be any questions. A petition for an automatic one month extension of time for response is enclosed together with the requisite petition fee.

Early favorable action is earnestly solicited.

Respectfully submitted,


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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Yamanaka et al.

Examiner: Kuer, K.

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For: **SYNTHETIC PAPER
MADE OF STRETCHED
POLYPROPYLENE FILM**

Assistant Commissioner for Patents
Washington, D.C. 20231

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THIRD SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. §1.132

I, Masaaki Yamanaka, do hereby declare:

1. I am the Declarant who executed the previous Declarations on October 6, 1999, March 22, 2001 and July 12, 2002 in the above-identified application;

2. The following additional experimentation (8 Experiments) was carried out under my supervision and control:

A. Experiment 1

The same procedure as in Experiment 1 of the Second Supplemental declaration under 37 C.F.R. § 1.132 was performed. Example 12 of the invention of Takashi et al. (U.S. Pat. No. 4,318,950) was reproduced. The same compositions as in Table I(b) and Table II(b) and the same molding conditions as in Table III of Takashi et al. were used but the conditions which are not described in Takashi et al. such as extrusion temperature, cooling temperature, etc., were replaced by those as described in the present invention.

A resin composition (A) containing 80 parts by weight of polypropylene ("Novatec PP, MA-8" (trade name) manufactured by Japan Polychem Corp., a melting point of 164°C), 20 parts by weight of polyamide (extrusion grade Nylon 6, "UBE Nylon 1022FDX23" (trade name), manufactured by Ube Industries, Ltd.), 0.5 part by weight of diatomaceous earth and 0.1 part by weight of dispersing agent (NYMEEN S-210, manufactured by NOF Corp.) was melt-kneaded with an extruder set at 270°C, subsequently extruded into a sheet, and then cooled to a temperature of about 50°C.

After being heated to about 140°C, this sheet was stretched in the machine direction 5 times using a peripheral velocity of rolls to obtain a machine-directionally stretched film.

A resin composition (B) containing 80 parts by weight of polypropylene ("Novatec PP, MA-3" (trade name) manufactured by Japan Polychem Corp., a melting point of 165°C), 20 parts by weight of polyamide ("UBE Nylon 1022FDX23" (trade name), manufactured by Ube Industries, Ltd.), 80 parts by weight of clay (particle size of 1µm, manufactured by Engelhard Minerals & Chemicals Co.), 0.5 part by weight of dispersing agent (NYMEEN S-210, manufactured by NOF Corp.) and 0.7 part by weight of low molecular weight antistatic agent ("PHOSPHANOL RL-210" (trade name has been changed from SM-1), manufactured by Toho Chemical Industry Co., Ltd.) (Because the low molecular weight antistatic agent "RESISTAT PE132" (trade name) used in Example 12 of U.S. Patent 4,318,950 is not available because of retirement, the

low molecular weight antistatic agent used in Example 1 of U.S. Patent 4,318,850 was used.) was melt kneaded with two extruders set at 250°C separately, extruded from the die into a film on both surfaces of the machine-directionally stretched film and then laminated (B/A/B) to form a laminate (paper-like layer/base layer/paper-like layer).

This three-layer film (B/A/B) was introduced into a tenter oven, heated to 165°C, stretched in the transverse direction 7 times with a tenter stretching machine at a temperature of 160°C and then heat-set at a temperature of 140°C. Subsequently, the stretched film was treated with 70 W/m² min. corona discharge on the side of the paper-like layer (layer B), cooled to a temperature of 55°C, and trimmed. The thickness of the three layer stretched film was 140µm and the thicknesses of the individual layers ((B)(A)(B)) of the three layer stretched film were 50µm/40µm/ 50µm. The thus obtained synthetic film is a composite film containing biaxially stretched base layer and two uniaxially stretched paper-like layers (surface layers).

B. Experiment 2

The same procedure as in Experiment 1 was performed except that the corona discharge was omitted.

C. Experiment 3

The same procedure as in Experiment 1 was performed except that the paper-like layer was not formed as the back surface layer (only two layers, A/B, present).

D. Experiment 4

The same procedure as in Experiment 1 was performed except that the base layer and the paper-like layer as the back surface layer were not formed (only one layer, B, present).

E. Experiment 5

The same procedure as in Example 1 of the present application was performed.

F. Experiment 6

The same procedure as in Experiment 1 was performed except that the paper-like layer was not formed as the back surface layer (only two layers, A/B, present).

G. Experiment 7

The same procedure as in Experiment 5 was performed except that the base layer and the paper-like layer as the back surface layer were not formed, and that the thickness of the paper-like layer as the front surface layer was changed to 50 μ m (the reason why the thickness was changed is that it was difficult to obtain a 1 layer film having a thickness of 20 μ m and having the composition of the paper-like layer as described in Experiment 5).

H. Experiment 8

The same procedure as in Experiment 1 was performed except that the base layer and the paper-like layer each had the composition described in Table 1 below (the compositions of Experiments 1-8 are presented in Table 1).

3. Evaluation of Experiments 1-8

According to the evaluation methods of synthetic papers of the present invention, (1) surface resistivities of the synthetic papers before and after washing with water and (2) ink adhesion and suitability for paper feeding/discharge as the offset printability, were evaluated. The thus obtained results are shown in Table 2 below.

(1) Surface Resistivity

The surface resistivity of the synthetic paper (containing 0.7 part by weight of low molecular weight antistatic agent) of each of Experiments 1 to 4 was $2 \times 10^{12} \Omega$ before washing with water (a), which was somewhat improved, but was $1 \times 10^{16} \Omega$ after washing with water, which deteriorated.

Resistivity of the synthetic paper of each of Experiments 5 to 7 did not change as compared with that of Example 1 of the present application.

The surface resistivity of the synthetic paper (containing 40 % by weight (66.7 parts by weight based on the resin components) of polyetheresteramide) of Experiment 8 was $6 \times 10^{12} \Omega$ before washing with water (a), which was somewhat improved, and was $6 \times 10^{12} \Omega$ after washing with water, which was unchanged. Because

a large amount of polyetheresteramide was added, polyetheresteramide was insufficiently dispersed, so surface resistivities of 10^{10} to 10^{11} Ω as described in the Examples of the present application could not be obtained.

(2) Offset Printability

Referring to the symbols on page 5 of the second Supplemental Declaration, the ink adhesion on the synthetic paper of each of Experiments 1, 3, and 4 was Δ , and the suitability for paper feeding/discharge was X because of high surface resistivity.

The ink adhesion on the synthetic paper of Experiment 2 was X, and the suitability for paper feeding/discharge was X because of high surface resistivity.

The ink adhesion and suitability for paper feeding/discharge of synthetic paper of each of Experiments 5 to 7 were similar to those of Example 1 of the present application.

The ink adhesion on the synthetic paper of Experiment 8 was Δ , and the suitability for paper feeding discharge was Δ .

Components: base Layer						
	Resin	Parts	Filler	Parts	Anti-static Agent	Parts
Ex. 1 to Ex. 3	PP ¹	80	Kiesel- Guthr	0.5		NYMEEN S-210 1.0
Ex. 4	Polyamide ²³	20				
Ex. 5 and Ex. 6			No base layer			
Ex. 7			No base layer			
Components: Paper Like Layer						
	Resin	Parts	Filler	Parts	Anti-static Agent	Parts
Ex. 1 to Ex. 4	PP ²⁴	80	Clay	80	PHOSPAOL SM-1	0.7
Ex. 5 to Ex. 7	Polyamide ²³	20				
Ex. 8	PP ²⁴	80	Clay	80	PEEA	86.7
	Polyamide ²³	20			NYMEEN S-210	0.5

TABLE 1

PP¹: Polypropylene, "Novatec PP, MA-8" (trade name, melting point of 164°C). Manufactured by Japan Polychem Corp.

PP²: Polypropylene, "Novatec PP, MA-3" (trade name, melting point of 165°C). Manufactured by Japan Polychem Corp.

Polyamide³: Nylon 6, "UBE Nylon 1022FDX23" (trade name), Manufactured by UBE Industries, Ltd.

PHOSPHANOL SM-1: "PHOSPHANOL RL-210" (trade name has been changed), manufactures by Toho chemical Industry Co., Ltd.

NYMEEN S-210: manufactured by NOF Corp.

PEEA: polyetheresteramide of Production Example 1 of the present application.

Molding/Stretching/Surface Treatment				Evaluation			
Thickness	Stretching of Surface Layer	Surface Resistivity (Ω)		Offset Printability		Ink Adhesion	Suitability for Paper Feeding/discharge
		Front/back	Uni- or Bi-axial Stretching	Surface Treatment	(A)	(B)	
Ex. 1 60/40/50	Uniaxially	7	Corona	2×10^{13}	1×10^{16}	Δ	X
Ex. 2 60/40/50	Uniaxially	7	None	2×10^{13}	1×10^{16}	X	X
Ex. 3 50/40	Uniaxially	7	Corona	2×10^{13}	1×10^{16}	Δ	X
Ex. 4 50	Uniaxially	7	Corona	2×10^{13}	1×10^{16}	Δ	X
Ex. 5 20/50/20	Uniaxially	8	Corona	4×10^{11}	3×10^{11}	◎	◎
Ex. 6 20/50	Uniaxially	8	Corona	4×10^{11}	3×10^{11}	◎	◎
Ex. 7 50	Uniaxially	8	Corona	4×10^{11}	3×10^{11}	◎	◎
Ex. 8 60/40/50	Uniaxially	7	Corona	6×10^{12}	6×10^{12}	Δ	Δ

TABLE 2

4. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

May 19, 2009

Date

Masaaki Yamazaki
Masaaki Yamazaki

